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Anthropogenic Actions as a Driver for Contamination of Environment And Viral Infestation

Mr. Yakub Topno* Dr. Priyanka Singh**
**Physical Education Teacher, Kendriya Vidyalaya Dholchera, Silchar, Assam*
***Asst. Prof. HOD of Physical Education, ANDNN MahilaMahavidyalaya, Kanpur, UP*

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ABSTRACT : This article discusses about the effects of various human activities or the factors that leads to viral infestations .it reflects all the factor which influences emergence of viral diseases ,their methods of identification and epidemiological strategies. Therefore this article discusses with examples from the past and present situation, how progress in science and technology and modern life style pattern influences emergence of viral infection in the globalcommunity.

Key words:- ANTHROPOGENIC, ZOONOSIS, PROTEOMIC ,PCR, EPIDEMIOLOGY

I. INTRODUCTION:

Anthropogenic activities are those activities which directly or indirectly cause degradation of environment on a global scale. Anthropogenic activities means to overconsumption of animal resources, overpopulation, pollution, deforestation that leads to desertification, experimentation on bioweapons and medicinal researches which exploits numerous strains of microbes and viruses.

Anthropogenic actions that leads to emergence of diseases and zoonosis: Human population is expanding which requires space, resources and needing more animals to feed it. Emerging infections and disease are increasing causes more losses to humans as well as to animal lives. Many factors are contributing to emergence of diseases. Not only climate sensitive vector born diseases are likely to be emerging due to climatic change which is also in present situation is human induced but also many human activities are also contributing to it. Many anthropogenic actions have multiple direct and indirect effects but also it is very difficult to assess what the consequences may be. More over most of the human activities or human induced drivers includes actions such as irrigation, trade and travelling, research on bioweapons which the society is requiring at presentsituation.

Anthropogenic activities that leads to viral infestations also includes germ warfare, which actually is a use of biological toxins or agents having shorter incubation is one of the treacherous activity. It has numerous effects. In last few years human civilization hit by by-products of human actions .we can refer to microbes such as Bacillus anthracis,Botulin toxin, Ebola and in present state covid-19 .

The spread of covid-19 is not just an epidemic but also pseudoscienc has made it “mis- infodemic” too. Despite its low rate of mortality as compared to other viruses but it is worst as it spread through misinformation through digital data. Few examples related to history which throws light on germ warfareare-

i)-Use of plague as biological weapon during 1930’s and 1940’s on Chinese cities

ii)-Tunisian force used plague tainted clothing as a weapon in 1785 siege of La-called

If we refer to present covid-19 situation, is a highly pathogenic viral infection caused by SARS-COV-2 which belongs to coronaviridae family of Nidovirales order. It causes acute severe lung injury and respiratory distress syndrome. The SARS-COV-2 initially were thought to infect only animals until the world witnessed a severe infestation around the world.

According to some researchers, covid-19 is a result of human experimentation which results in modern nightmare. There are many rumors related to corona virus pandemic. This is not the first disease suspected to be bioweapon either. When 2002-03 outbreak of SARS virus occurred, it was suspected to make in a Chinese lab by Russians. But it’s not china that being accused .According to some officials it is a result of mutual distrust between United States and china and it is a bioweapon made by UnitedStates.

We should accept this fact that our cruel

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treatment to animals led to covid-19 infestations around the world. This virus evolved in animals and broke the species barriers to humans and then spread with human to human transmission or we can say this is a perfect example of Zoonosis.

Another perfect example of anthropogenic activity is the use of antibiotics in animal agriculture industry may result into risk of breeding antibiotic resistance.

It is a need of an hour that scientific and political focus needs to shift from zoonotic (Pathogenic infection from animals to humans) to Human induced diseases which includes infectious and non–infectious diseases. We live in an era which is completely different from all aspects of environment in which our ancestors lived. We live in large culturally diverse and totally man-made environment which consist of genetically unrelated individual. This man –made environmental changes leads to epidemiologictransition.

Epidemiology of viral infections

Best way to control anthropogenically induced viral infestations is through the detailed study of its determinant and dynamics which is actually epidemiology. It is used to break the chain of infection in the community. Devastation of environment by human action may abrupt change in living conditions and may reduce the level of health amongst the population. No country is save from viral infestations or emerging diseases. In short these entail loss of human life and in long term slowing down national social and economic development. Preparation for such infestations now forms a major element in national health policy. The bet preparation for mitigating the consequences of viral infections is to secure community participation in the health system. Our aim should be:

(i) Draw attention to the consequences of disaster on people'shealth.
(ii) Provide necessary information for monitoring and controllingdiseases.
(iii) Serve as a basis for drawing up national monitoring and disease control programmes within the localcontext.

Anthropogenic factors behind emerging and reemerging of viral infections

(a) Agricultural and intensiveproduction

Exponential growth in the human population has increased the food demand all over the world and result into conversion of large area into agricultural land. A novel paramyxo virus called Nipah virus isolated from human as well as from porcine. Serological and epidemiological study revealed that virus is commensal in fruit bat of genus pteropusand fruit bat is natural host of the virus .The reason of emergence of the disease in 1998 were extensive deforestation in peninsula and habitat destruction of the bat and newly developed fruit orchards which caused the bat to enter the farms.

(b) Antibioticabuse

Extensive use of antibiotics my lead to resistance against certain drug among certain strains of microbes which may result into pandemic form of certain diseases.

(c) Bioterrorism

Bioterrorism can be reflected through certain incidences like postal transportation of spores of Bacillusanthracisand covid -19 from present situation are good examples ofBioterrorism.

(d) Mixedfarming-

Birds also act as carrier for many viruses. Avian influenza virus has been reported to spread through birds and mammals. Transfer of farm waste to other farms in mixed farming may facilitate emergence of certain variants of viruses.

(e) Travel andtourism

Travel and tourism increases the risk of pathogen contact among tourists through certain leisure activities like safaris, tours and sports activities.

(f) Trade andtransportation

Animals transported for commercial trade are risk of infectious disease emergence in human beings as in case of monkey pox outbreak in 2003 where the humans to humans were affected in USA with monkey pox from prairie dogs.

(g) Blood transfusion

Viral agents are capable of being transmitted through blood transfusion like Chikungunia virus, HIV virus, Parvovirus B19, Cytomegalovirus.

Methods of viral infection Identification

Identification of viral agents is one of the most important strategies for sustainable viral infection management. For this we require fast, sensitive and accurate methods for detection and identification of pathogens.

New technologies with reduced cost and improved speed with accuracy is also a need of an hour. With application of PCRs and bioinformatics as modern technology can be used along with DNA recombination methods. The newly emerged proteomic technology is also a promising method for such detections.

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II. CONCLUSION

This paper mainly highlights human interference with nature and disruption and degradation of environment leading to spread of viral infections to species previously unseen. There is an urgent need for the people to understand that mankind has gone beyond its limits and is greedy to satisfy its needs. If we learn to live with minimal needs and respect ecosystem, this will make easy monitoring and surveillance of the population for better health measures.

STAY HOME & STAYSAFE